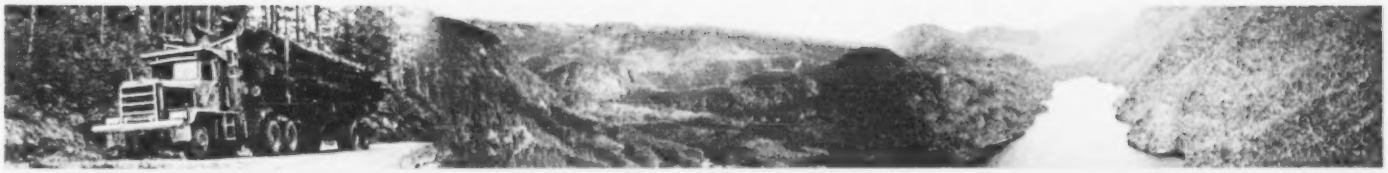


COMPARING BRITISH COLUMBIA WITH THE WORLD

››› "Throughout our research, we found that B.C. takes a stringent approach to forest policy regulation development, and on key measures we compared, is among the top of the 38 jurisdictions we studied from around the world."
- Dr. Benjamin Cashore ‹‹‹

The BC Market Outreach Network, in partnership with the Forest Products Association of Canada, asked Dr. Benjamin Cashore a professor at Yale University, to conduct an independent ground-breaking study to compare Canada's environmental forest practice regulations with those in jurisdictions around the world.

The resulting report, **Global Environmental Forest Policies: Canada as a Constant Case Comparison of Select Forest Practice Regulations**, provides strong evidence that forest practice regulations in Canada and British Columbia are among the toughest on earth.

The study showed that governments around the world have developed an array of forest policy regulations and practices that address critical issues around sustainable forest management. It highlighted the complexity of forest practice regulations and how they vary tremendously to deal with a wide range of historical, cultural, political, economic and ecological circumstances. It also noted the challenge of finding up-to-date, consistent and analytically appropriate data to compare measures such as protected areas on a global level.

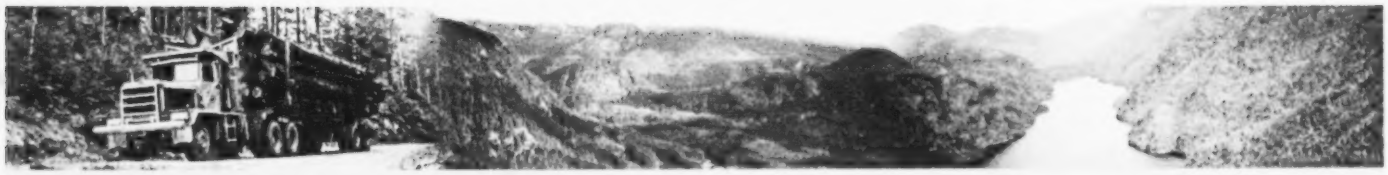
The BC Market Outreach Network has prepared this fact sheet as a summary of the report's findings. Since forest practices are constantly changing, it has included as footnotes some recent B.C. developments that were not in the study itself.

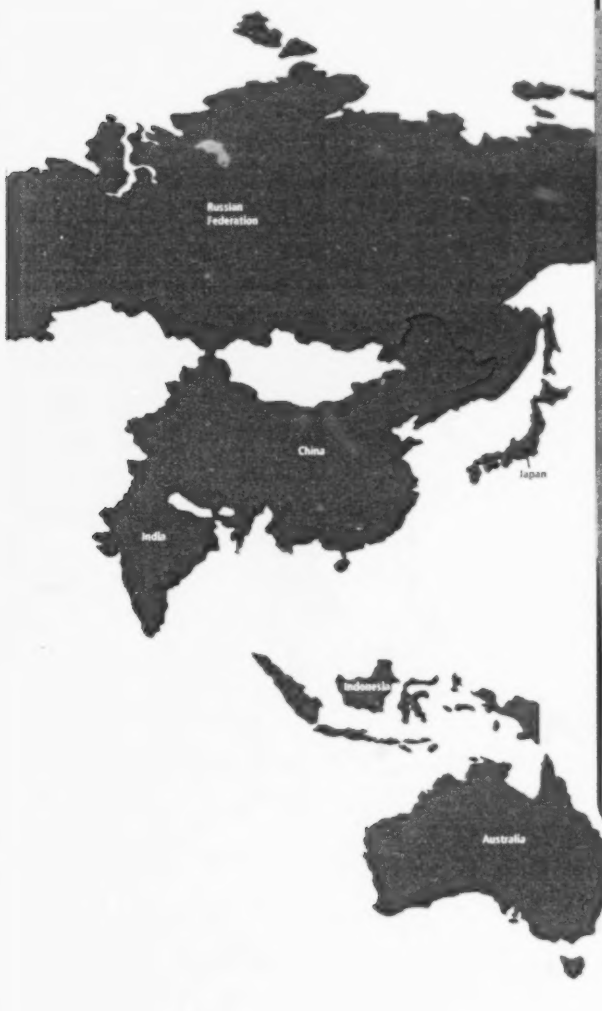
This study was conducted by:

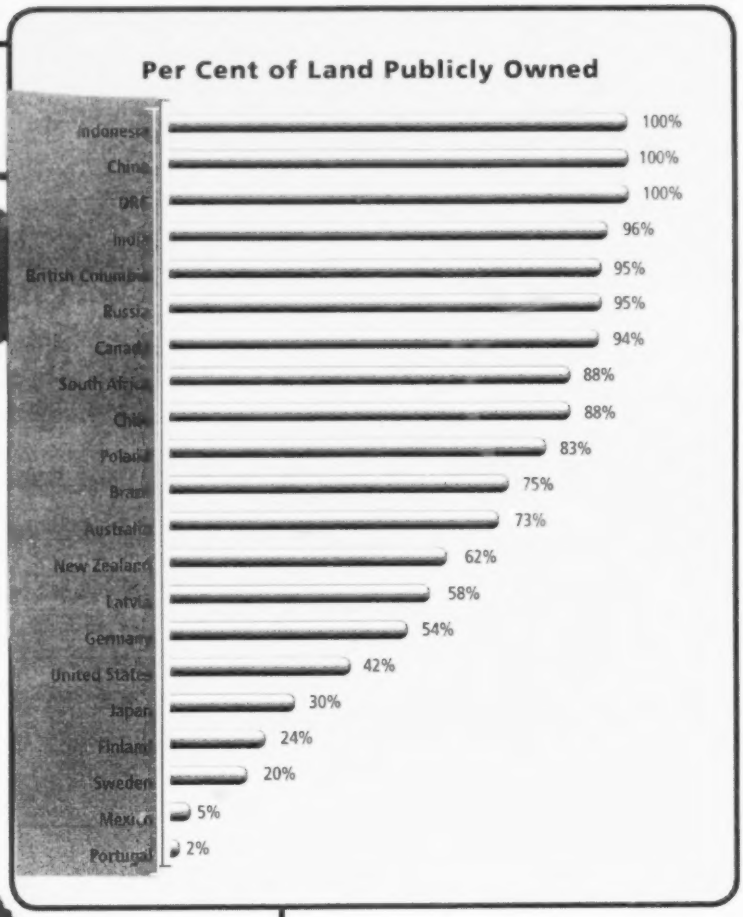
- *Dr. Benjamin Cashore, associate professor of sustainable forest policy, and chair, Program on Forest Certification, at the Yale School of Forestry and Environmental Studies, New Haven, CT.*
- *Dr. Constance McDermott, research associate in the Program on Forest Certification at the Yale School of Forestry and Environmental Studies, New Haven, CT.*

HOW THE STUDY WAS CONDUCTED

The study identified specific regions, and selected countries in each where forests had the highest economic importance, measured by the value of imports and exports, and the highest environmental importance, measured by total forest cover. It added 5 other countries that were considered to be of interest – Finland, Portugal, Latvia, Chile and New Zealand.







The study examined how each of the selected jurisdictions responded to 5 precisely defined forest practices criteria – riparian zone regulations, clearcutting regulations, road building, reforestation requirements and allowable annual cut regulations. It also looked at plantation management, biodiversity, enforcement and third-party certification.

Significant provinces or states were examined where forest policies vary across a country. These included Canada (4 provinces), the United States (15 states), Germany (Bavaria), Brazil (Amazon), Australia (New South Wales) and India (Madhya Pradesh). The study authors were asked to use Canada, which exports more forest products than any other country in the world, as the constant case comparison.

The study's intent was to provide an objective and analytical comparison; it did not attempt to assess whether the policies and practices reviewed were the most appropriate. Once data collection concluded in January 2004[1], the draft report was peer reviewed by more than 20 North American and international scientific experts, and their suggested revisions were addressed.

[1]The study's data collection is based on regulations under B.C.'s Forest Practices Code. B.C.'s new result-based Forest and Range Practices Act will maintain the high standards for environmental protection.

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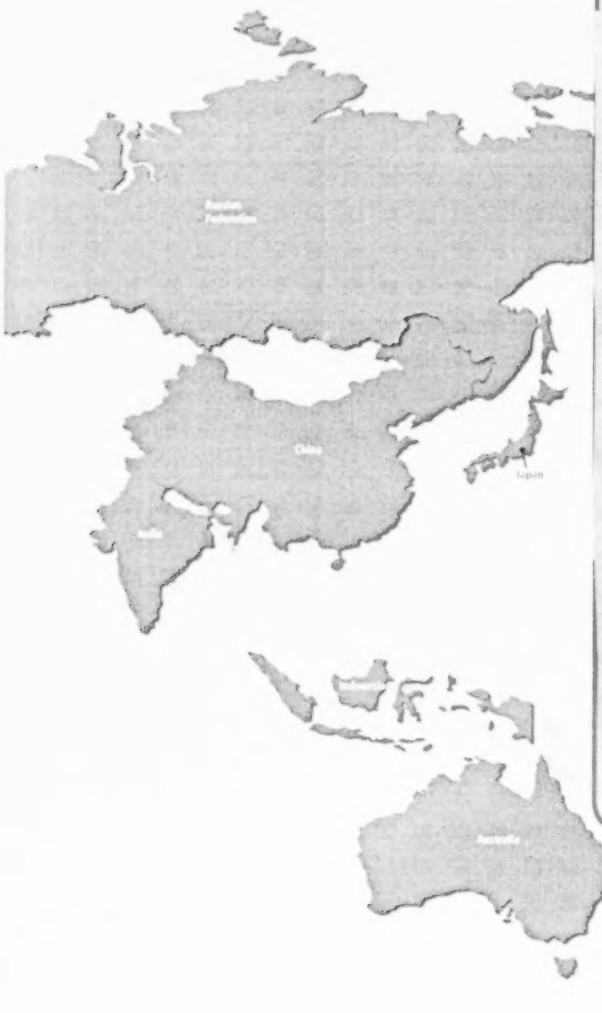

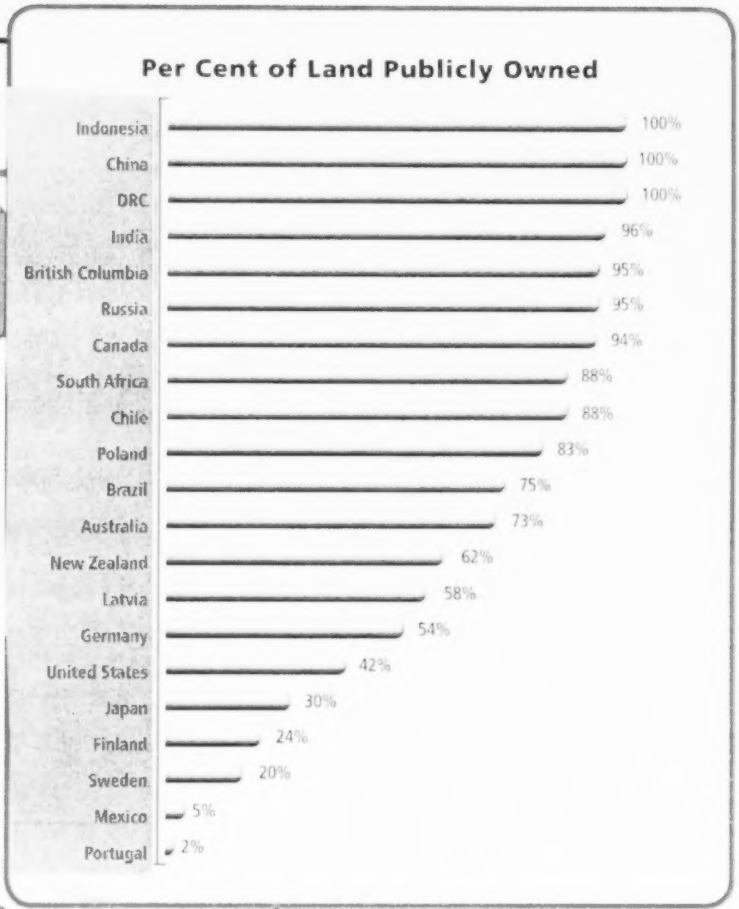

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RIPARIAN ZONE MANAGEMENT

Riparian areas are an important measure of forest practices. They include some of the world's most productive forest lands, and contain many other forest values. Trees alongside streams, rivers, lakes or other water sources protect water quality and habitat for fish and other aquatic species by moderating water temperatures, stabilizing banks, providing nutrients and reducing the amount of silt in the water. The study looked at the size of buffer zones and rules related to harvesting within these buffers.

Riparian management is the source of some of the most important and the most complex forest regulation policies. B.C. alone has rules for 7 different categories of stream, and Alaska has 39 categories for different regions, types of streams and forest ownership.

The study identified some jurisdictions with mandatory no-harvesting riparian zones, including B.C., Quebec, U.S. federal lands and a number of western U.S. states. No harvest zones are required on state forestlands in native forests in New South Wales.

Natural and semi-natural streams in Europe and indigenous forests in New Zealand have special protection. Some western European countries with mandatory no-harvest zones for natural streams have no standardized width, but this is less of a concern if selective harvesting is common. In the German state of Bavaria, forestry activities are not allowed in riparian zones on state-owned lands, however, riparian buffer zone widths and management are handled on a case-by-case basis on both public and state lands.

Sweden has no standardized requirements, but does have generalized and mandatory requirements to leave protective buffer zones where activity is limited to avoid or reduce damage. Riparian zones are voluntary in U.S. southeastern states, Portugal and Japan's private non-protection forests.

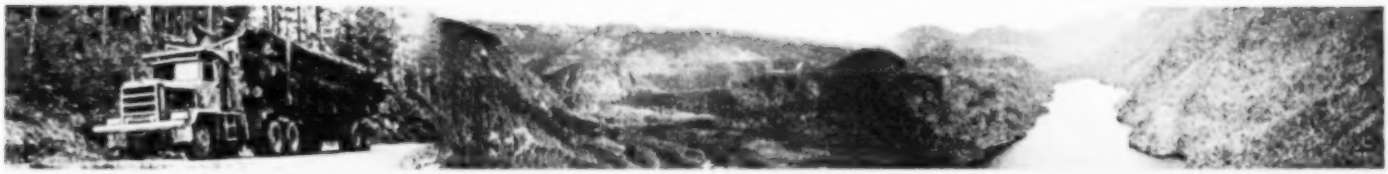
Jurisdiction	*Stream Class*	*Range of mandatory no-harvest buffer zones in metres*
Brazil: Amazon	all stream classes	30-500
Chile	all stream classes	50-400
Democratic Republic of Congo	all stream classes	50-100
Indonesia	all stream classes	50-100
U.S. Forest Service	all stream classes	30-90
Quebec	salmon-bearing streams	60
British Columbia	fish-bearing or community water supply	20-50
Mexico	all stream classes	5-50
New South Wales	all watercourses	5-50
South Africa	plantations	50
Alaska	Coast and Interior south	0-30
Washington State	all stream classes (core zone areas only)	9-15
Latvia	all stream classes	10
Oregon	all stream classes	6

Some of the jurisdictions studied have mandatory no-harvest zones alongside specific classes of waterways. B.C. has mandatory no-harvest zones for 3 classes of fish-bearing or community water supply streams, and mandatory special management zones adjacent to the mandatory no-harvest zones that limit harvesting activity.

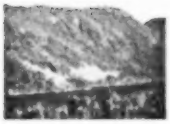
Where B.C. stands: *While riparian zones are complex, B.C.'s rules for streamside protection are, on average, among the highest in North America.*

Jurisdictions without Standardized no-harvest buffer zone sizes include:

Alberta
Finland
Germany
India
Japan
New Zealand
Poland
Portugal
Russia
Sweden
Alabama
Arkansas
Georgia
Louisiana
Mississippi
North Carolina
Ontario
Idaho
South Carolina
Texas
Virginia

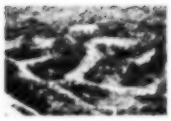


CLEARCUTTING



Clearcutting is the most dominant harvesting method globally and is also the most controversial, largely due to concerns about its impact on forest ecosystems and its appearance. The study looked at clearcut size limits and other relevant cutting rules.

The size of forest holdings and the type of forest must be considered when reviewing the size of clearcuts. In most of Europe, forest holdings are small so clearcut sizes are not as relevant as they are in B.C. where forest management units can cover hundreds of thousands of hectares. Larger clearcuts may be consistent with natural disturbance processes such as wildfire, and may even be preferable to smaller harvest areas that lead to more roads and excessive forest edge.



On U.S. federal lands, clearcuts are limited to 16 to 24 hectares (40 to 60 acres), depending on the type of forest. There are no limits on private lands in the southeastern states.

In Poland, where most state forests are less than 5 hectares (12.4 acres), the maximum size of a clearcut is 4 hectares (9.9 acres). There are no size limits in jurisdictions such as Bavaria, where the average size of a forest holding is 8 hectares (19.8 acres), or in Finland, where the average forest holding is 26 hectares (64.2 acres). In Sweden, state permission is needed for what is called regeneration felling larger than half a hectare; and the average harvest area is 4.7 hectares (11.6 acres).

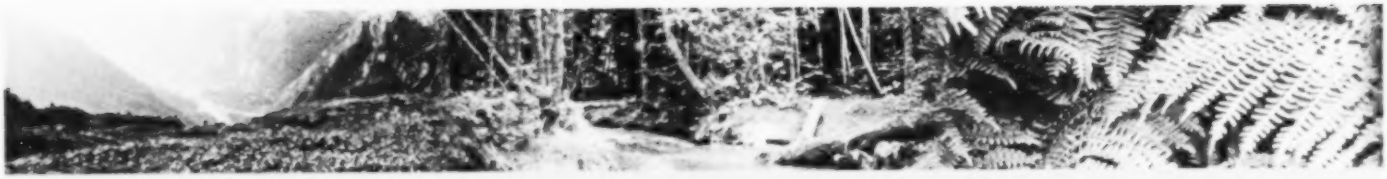
While Chile prohibits clearcuts in natural forests, there are no restrictions in plantations. New Zealand has stricter rules for natural forests than for plantations. Russia, Latvia, Chile and China, like the 4 Canadian provinces, have maximum clearcut sizes that apply to public and some private lands. Russia, with the world's largest boreal and intact forests with a complex forest classification system, has clearcut size limits ranging from 10 hectares (24.7 acres) in protection forests to a maximum of 250 hectares (617.7 acres) in Far East pioneer hardwoods.

Clearcutting is not a common practice in tropical forests due to the high diversity of tree species and the presence of many non-commercial

Jurisdiction(s)	*Size of Limit*	*Notes*
New Zealand	0.5 ha	Beech forest, no limit in plantations
Sweden	0.5-20 ha	
Poland	4 ha	Public forest
Latvia	5-10 ha	Special rules apply on wet soils
California	8-16 ha	Tractor yarding or aerial/cable yarding
Russia	10-250 ha	
U.S. Forest Service	16-24 ha	
Japan	20 ha	National and protection forests; no limits in private production forests
Alberta	32-100 ha	
British Columbia	40-60 ha	
Quebec	50-150	
Oregon	49-97 ha	
Washington state	49-97 ha	
Ontario	260 ha	

Clearcut size limits in select case study jurisdictions. The jurisdictions with no limits on clearcut size include Bavaria, Finland, New South Wales, Portugal and 12 U.S. states (Alabama, Alaska, Arkansas, Georgia, Idaho, Louisiana, Mississippi, Montana, North Carolina, South Carolina, Texas, Virginia)

Note: Due to the vastly different silvicultural practices associated with tropical forestry, this chart does not attempt to capture harvesting rules in the developing countries.



species. In the Amazon region, deforestation permits are issued according to property size, and 80 per cent of the forest area on properties larger than 200 hectares (494.2 acres) must be placed in permanent reserve.

Many of the case jurisdictions set clearcut sizes as part of management planning. While this means it is at the discretion of government officials, it also addresses a variety of interests if the planning is open to community participation.

Where B.C. stands: *Clearcut size limits in B.C. are 40 hectares (98.8 acres) or 60 hectares (148.3 acres), depending on the forest region[2].*

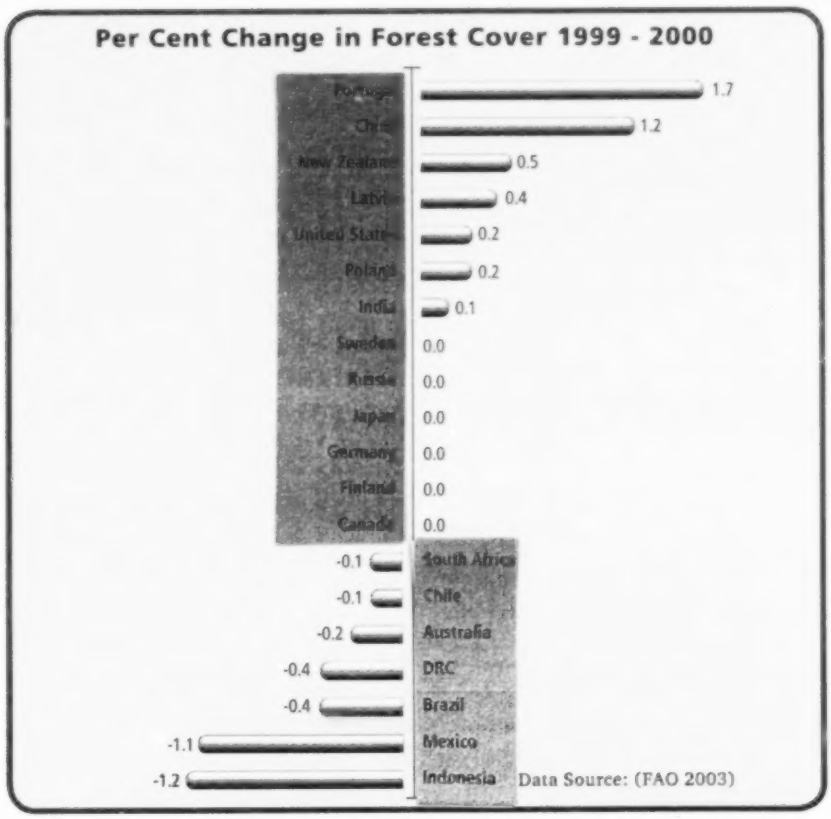
ROADS

How and where logging roads are built can have a major impact on the environment. The study looked at forest regulation policies related to culvert design at stream crossings, which is a measure of good road construction, and road decommissioning once the logging is completed since road networks open up forests to increased human activity.

B.C. is among the jurisdictions that have established standardized culvert size requirements at stream crossings. The others include Alberta, Quebec, Alaska, California, Idaho, Oregon, U.S. federal lands, Washington, Germany, Finland, New South Wales, Japan and Russia. Latvia has requirements for surfaced roads only, and Ontario has requirements for fish passage. Road decommissioning is required in the 4 Canadian provinces, Indonesia, the western U.S. states and U.S. federal lands. Mexico requires detailed road plans that include maintenance prescriptions for the life of the road.

Jurisdictions with well-developed public road networks, such as most European countries, generally do not have detailed policies related to forest road construction and decommissioning. Developing countries, where forest roads have broader implications because they allow rural populations to move into less accessible areas, often lack road building rules. The Amazon region requires detailed road plans although there are no standardized specifications for road width, culvert size, stream crossing or decommissioning.

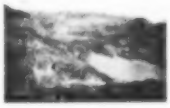
Where B.C. stands: *B.C. has mandatory, detailed rules and specifications for both building and decommissioning roads on public lands.*



The loss of forest cover often means a loss of environmental, social and economic values. Road building can open up natural forests to activities such as farming, ranching and industrial development that can lead to deforestation. Countries such as Canada, Sweden and Germany are able to maintain their forest cover even though they rely on forestry. In some cases, increases in forest cover are the result of an expansion of intensively managed plantations.

[2]Note: The average size of clearcuts in B.C. has dropped to 23 hectares (57 acres) in 2002 from 43 hectares (106 acres) in 1988.

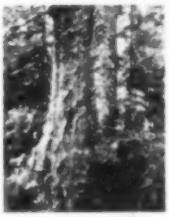
ALLOWABLE ANNUAL CUT



The study looked at whether there were limits on the amount of timber that can be cut each year and, if so, what forest managers consider when they establish these limits and whether it is based on sustained yield.

The Canadian provinces require allowable annual cut determinations for provincial forests, and similar requirements were found in Germany, Finland, New South Wales, indigenous forests in New Zealand and public forests in Japan.

Some jurisdictions, such as California and New South Wales, set limits only for high-quality products. As is the case with other measures, allowable annual cut requirements sometimes differ between public and private lands, natural forests and plantations.



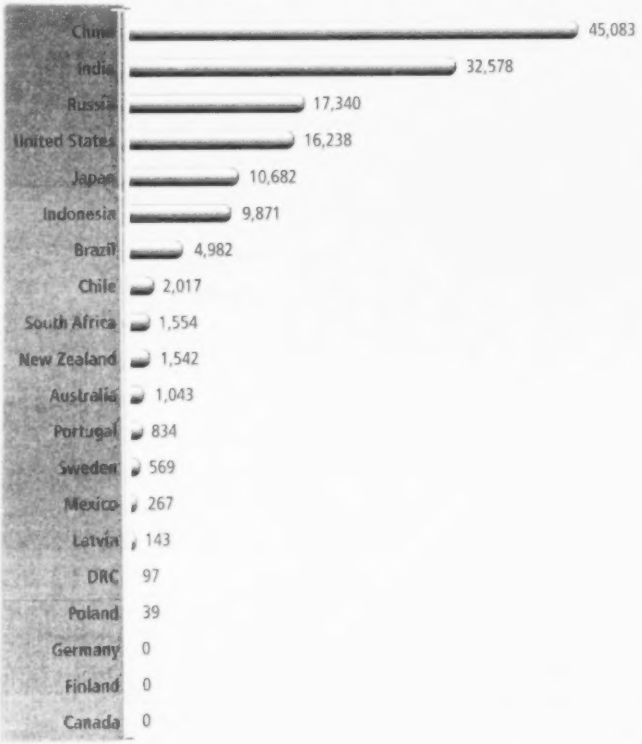
Where B.C. stands: *B.C.'s independent chief forester regularly sets allowable annual cuts for public lands according to sustained-yield principles, considering community-based land use planning, public input and the latest science, information, practices and policies.*

PLANTATIONS

Some view the rapid growth worldwide of intensely managed forests or plantations as positive, reducing pressures on natural forests. Others dislike what they see as a lack of biological diversity, dependence on chemicals and frequent use of exotic or genetically modified species. The study looked at whether countries have rules pertaining specifically to intensively managed plantations, which are treated more like an agricultural crop than a natural forest.

Germany, Finland and the 4 Canadian provinces were excluded from this section of the study as they do not have plantations as defined by the Food and Agriculture Organization.

Forest Plantations ('000 ha) in 2000



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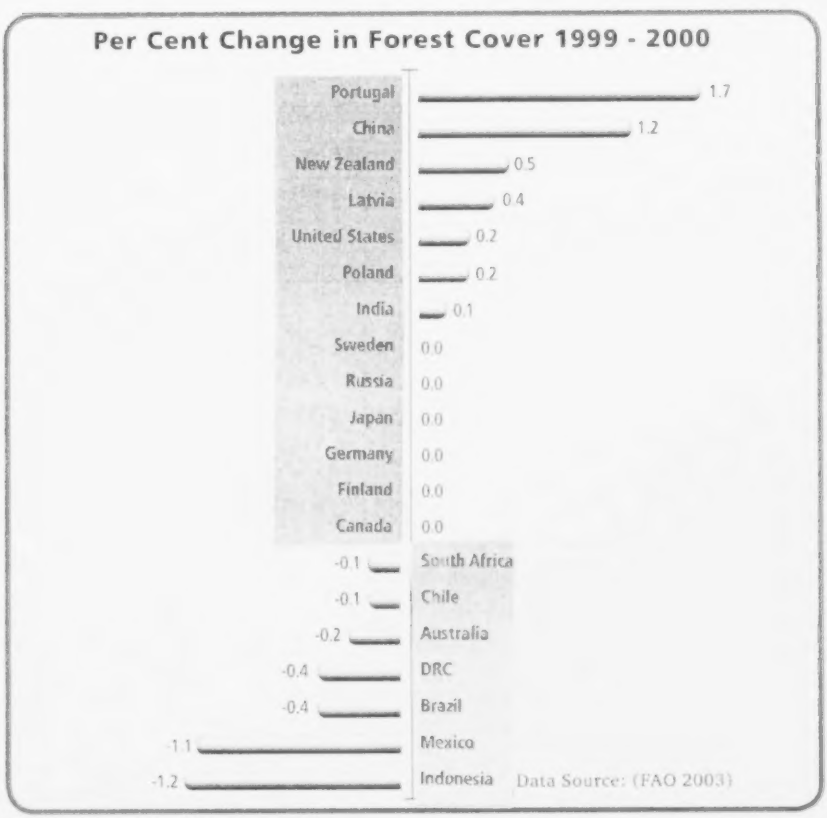

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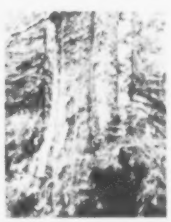

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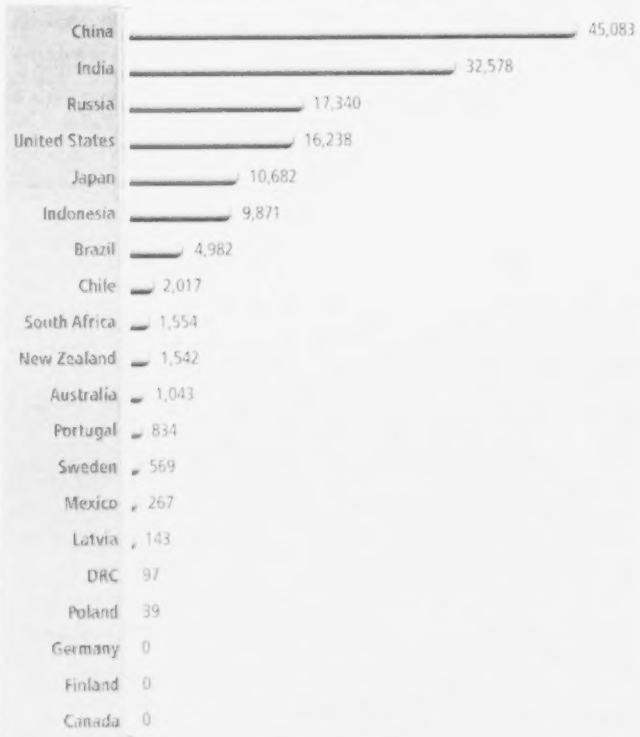


The Food and Agriculture Organization defines plantations as either introduced species (all planted stands), or intensely managed stands of indigenous species, which meet all the following criteria: 1 or 2 species at planting, even age class, regular spacing.

Countries such as New Zealand and Australia have plantations on degraded lands that were once forested, often in response to public pressure to preserve native forests. While Indonesia lists grasslands and unproductive forest areas as priority areas for plantations, natural forests are also being converted to plantations.

Some countries, including Sweden and Portugal, use the same forest laws for plantations and natural forests. Others, like New Zealand, New South Wales and South Africa, have laws that distinguish between plantations and natural forests.

The U.S. does not have a system to record the land area devoted to timber plantations, although the study found more emphasis on plantations in the southeast. In the West and Pacific Northwest, short-rotation hybrid poplar is generally classified as agricultural land and managed through intensive agricultural methods.

In Russia, there are few special rules for the 17.3 million hectares (42.8 million acres), or about 2 per cent of the total forest area, that meets the stated definition of a plantation. However, the focus is on enhanced timber production and there is little use of exotic species.

In Brazil, where plantations have some of the highest growth rates worldwide, private landowners must establish forest reserves, protect riparian zones and obtain harvesting permits. In Chile, there are no restrictions on exotic species in plantations but it is also illegal to convert natural forest to a plantation.

Where B.C. stands: *B.C. manages natural productive forests. It does not replant forests with monocultures or genetically modified species, and has strict restrictions on the use of exotic species. As a result, B.C. has virtually no plantations as defined by the UN Food and Agriculture Organization.*

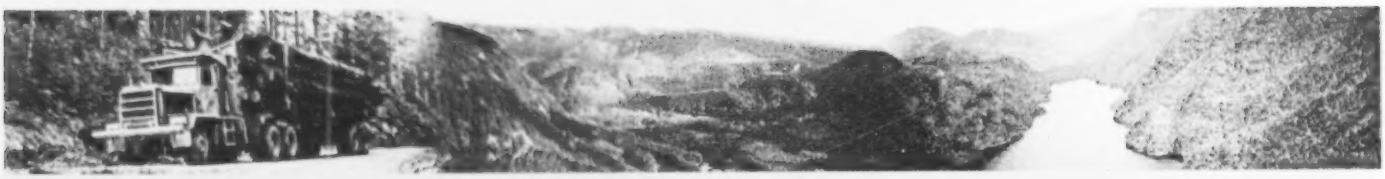
Intensively managed plantations may be more profitable, and may be preferable to converting forest land to other non-forest uses. B.C. does not have intensively managed forests that meet the FAO definition of plantation. Instead, it manages its forests to maintain their wide range of natural diversity.

REFORESTATION

Once a natural forest is logged, it can be converted to other uses, it can be left to regenerate naturally or it can be reforested using natural species suited to the ecosystem. The study looked at whether countries set a timeframe for reforestation and require minimum stocking levels.

Most of the case jurisdictions have mandatory reforestation policies or standards for their public lands; in Russia these rules also apply to plantations. Exceptions included most southeast U.S. states, New South Wales and private non-protection forests in Japan, as well as plantations in countries such as Chile and New Zealand.

The Canadian provinces, California, Idaho, Oregon, Washington, Finland, Germany, New Zealand indigenous forest, Poland state forests, Latvia, Russia, and the Democratic Republic of Congo have mandatory timeframes and minimum stocking levels.



A diverse forest ecosystem supports a variety of habitat, is better able to resist pests and changing climatic conditions.

Mandatory Standards or Policies	With Timeframes	With Stocking Levels
Alaska	☐	☐
Alberta	✓	✓
British Columbia	✓	✓
California	✓	✓
Chile	☐	☐
DRC	✓	✓
Finland	✓	✓
Germany	✓	✓
Idaho	✓	✓
India	☐	☐
Indonesia	☐	☐
Latvia	✓	✓
Mexico	☐	☐
New South Wales public lands	☐	☐
New Zealand indigenous forests	✓	✓
Ontario	✓	✓
Oregon	✓	✓
Poland state forests	✓	✓
Poland private forests[1]	✓	☐
Quebec public forests	✓	✓
Russia	✓	✓
South Africa natural forests	☐	☐
Sweden	✓	✓
U.S. federal lands	✓	✓
Virginia	✓	✓
Washington		

Some of the case studies have mandatory reforestation standards or policies, and some also have mandatory timeframes or stocking levels.

[1]Poland private forests have voluntary stocking standards

Mandatory reforestation is required on private lands in Poland, Finland, Bavaria, Sweden and protection forests in Japan. While reforestation is not required on private lands in the Brazilian Amazon, permanent reserves are required and the forest cover is maintained in these areas.

Where B.C. stands: *B.C. has mandatory reforestation, including mandatory timeframes and minimum stocking levels, on all public lands and some classifications of private lands[3].*

Voluntary Reforestation Standards or Policies	No Reforestation Standards or Policies
Arkansas	Alabama
Georgia	Brazilian Amazon[2]
Louisiana	Chile – plantation
Montana	Mississippi
New Zealand – plantation	New South Wales private lands
Portugal	North Carolina
Quebec private forests	Texas
South Carolina	South Africa - plantation[3]

Case Study jurisdictions with voluntary or no reforestation standards or policies.

[2]Brazilian Amazon has "deforestation permits", however, 20-80% of private properties must be maintained as forest reserve, depending on property size

[3]South African plantations on non-forest lands are frequently deforested to restore water tables

BIODIVERSITY

All forest management decisions affect forest diversity. Protecting biodiversity is key to the principle of ecosystem management so the study focused on 2 areas – rules to protect species at risk and their habitat, and the designation of protected areas.

Canada has federal endangered species legislation, and individual provinces have measures that apply to provincial lands. Ontario and Quebec have enacted endangered species acts; B.C.'s forest laws include a strategy that identifies wildlife at risk and designates habitat areas to protect them.

[4]B.C. laws require that companies harvesting on public and some private lands maintain forest diversity, and remain responsible for a harvested area until there is assurance it will grow into a new, healthy forest.

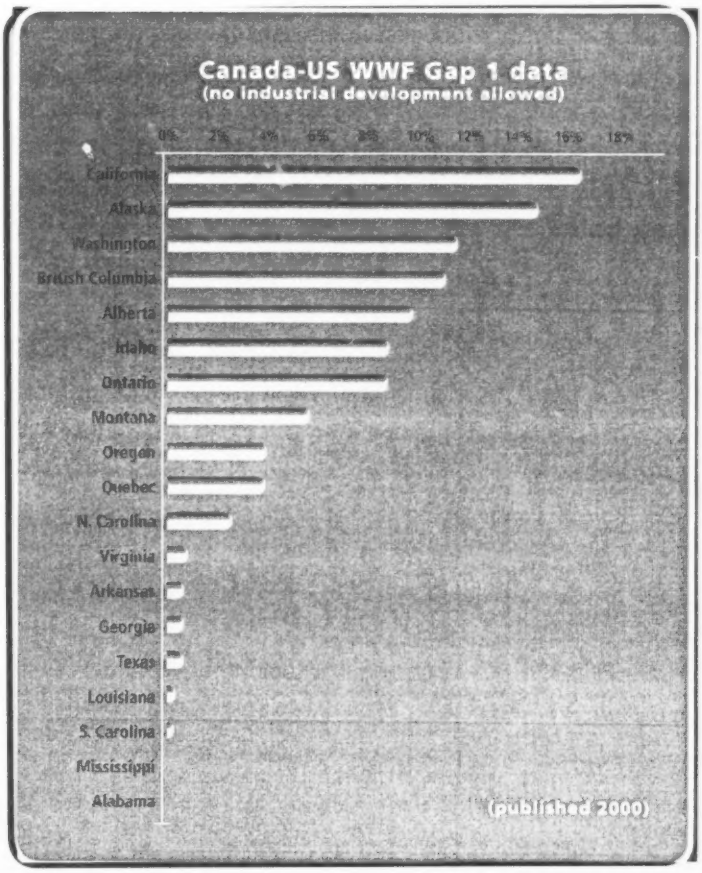
The study found legislation requiring varying degrees of protection for endangered species habitat in the U.S., Portugal, New South Wales, Japan, Russia, Latvia, Mexico and Indonesia. Often rules for intensively managed plantations allow more management discretion, and private landowners in the U.S. southeast, Sweden and Portugal are free to convert natural forest to plantations.

Bavaria protects endangered species in prohibited areas but without guidelines to protect habitat. Finland emphasizes biodiversity in forest practice guidelines and offers detailed guidance for habitat protection. In New South Wales, licensees must plan to mitigate potential impacts on identified threatened species and habitat. Russia has an endangered species act, which is intended to protect biodiversity.

Mexico has rules to address species and habitat protection. In Indonesia the central government is responsible for species and habitat protection. Brazil has no endangered species legislation but there are national policies to protect habitat in the Amazon region, and it has the largest protected area of tropical forest in the world.

New Zealand, which lost roughly 90 per cent of its frontier forest since European settlement, now has 24.4 per cent of its land base protected.

Where B.C. stands: *B.C. has an identified wildlife management strategy, with wildlife habitat areas where special management is needed to protect species. It is among the North American leaders in designating protected areas*[4].



Percentage of the total land area in the U.S. and Canadian case study jurisdictions defined by the World Wildlife Fund/Conservation Biology Institute as GAP 1 protected land, which means no industrial economic development is allowed.

ENFORCEMENT

Since regulations are irrelevant if they are not enforced, the study looked at compliance monitoring, and the degree to which forest audit records and decisions are made public.

International discussions about enforcement of forest policies usually focus on illegal logging, which result in poor practices because they are unregulated. Illegal logging is recognized as one of the most serious causes of global forest degradation. For example, only one fifth of Indonesia's harvest was legal in 2002 and, as a result, the country has a high rate of deforestation. The Indonesian government is trying to curb this illegal logging but the country's political and economic instability are major obstacles.

Brazil loses the highest actual area of forest every year, much of this the result of illegal activities. In Russia, illegal logging makes up at least 7 per cent of the total harvest. In Chile, illegal logging threatens the endangered alerce, a tree that resembles the California redwood. In India, rising prices lead to illegal logging of high-value species such as teak.

[4]B.C. has doubled its protected land base since 1992 to more than 12.5 per cent today.

Like Canada, a number of the jurisdictions studied, such as the U.S., Germany, Sweden, Portugal, New South Wales and New Zealand, have well-developed enforcement regimes.

Where B.C. stands: ***B.C. has a multi-faceted compliance and enforcement regime that includes both routine and random audits, with results posted public, and an independent Forest Practices Board that monitors both licensees and government accountable for forestry practices.***

THIRD-PARTY FOREST CERTIFICATION

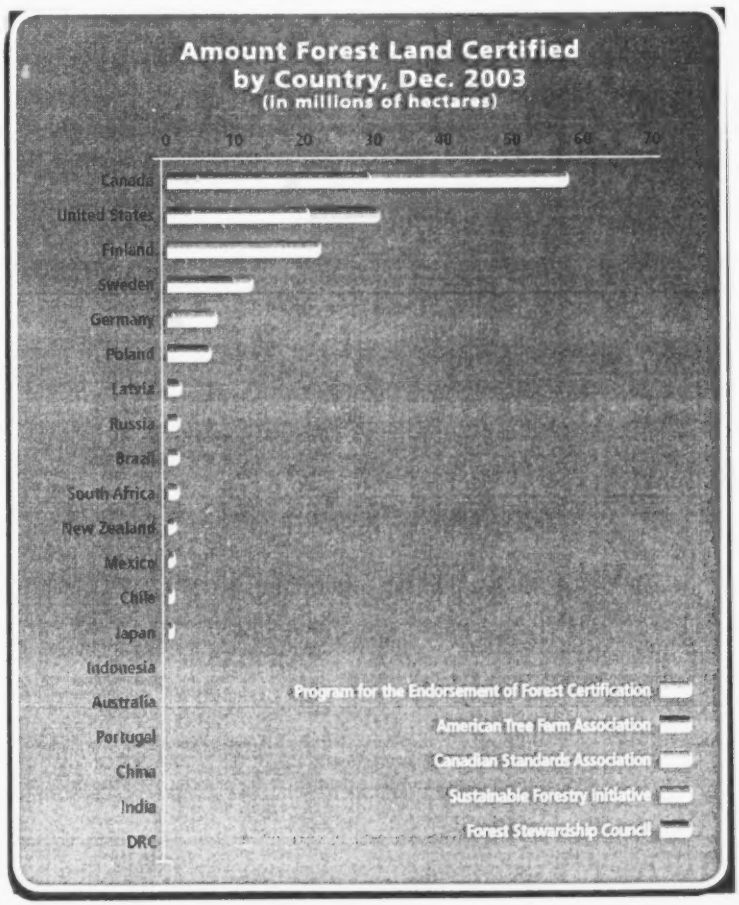
While government policies are the key to good forest management, third-party certification has emerged as an innovative non-state policy instrument that promotes sustainable forestry by recognizing companies that practise corporate environmental and social stewardship. The study looked at how much land is certified under the major system in each of the countries being reviewed.

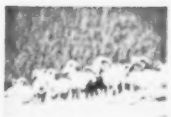
Although certification was developed to respond to tropical forest degradation, most certified lands are in Europe and North America where a number of credible certification schemes are in place, including the Forest Stewardship Council (FSC), the Canadian Standards Association (CSA), the Sustainable Forestry Initiative (SFI) and the Programme for the Endorsement of Forest Certification (PEFC).

Russia is developing a system that requires mandatory certification for standing timber and secondary forest resources, which is seen as a tool to prevent illegal logging.

FSC is the major certification system in place in the Southern Hemisphere and developing countries, although other systems such as the Programme for the Endorsement of Forest Certification and Brazil's CERFLOR are expanding into Africa and South and Central America.

Where BC stands: ***B.C. is a North American leader in third-party sustainable forest management certification, and has more forest lands certified than Sweden or Germany, and almost as much as Finland. In June 2004, B.C. had 22.4 million hectares (55.3 million acres) certified under CSA, SFI or FSC.***





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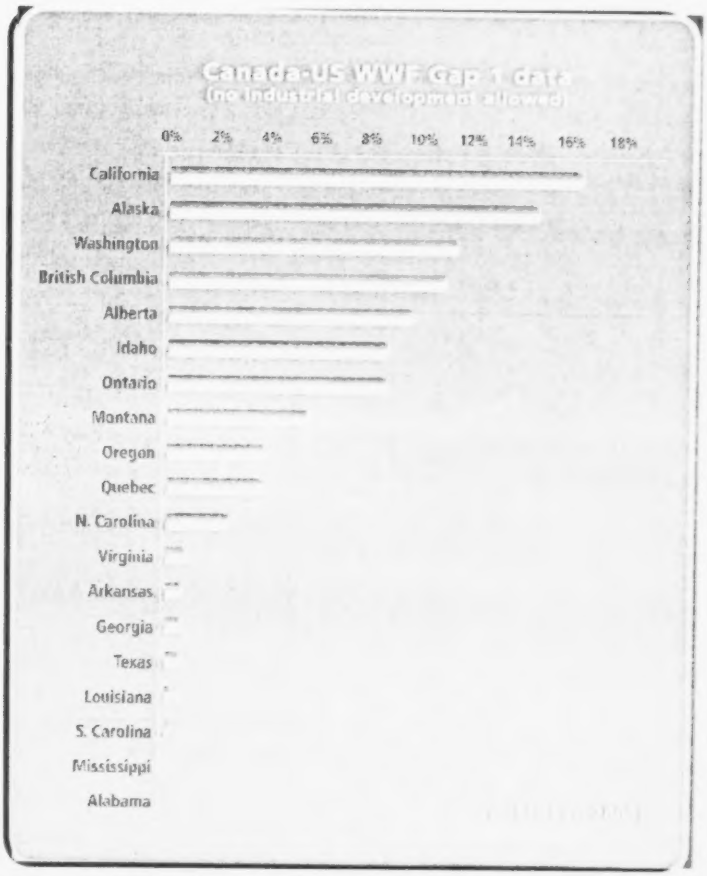

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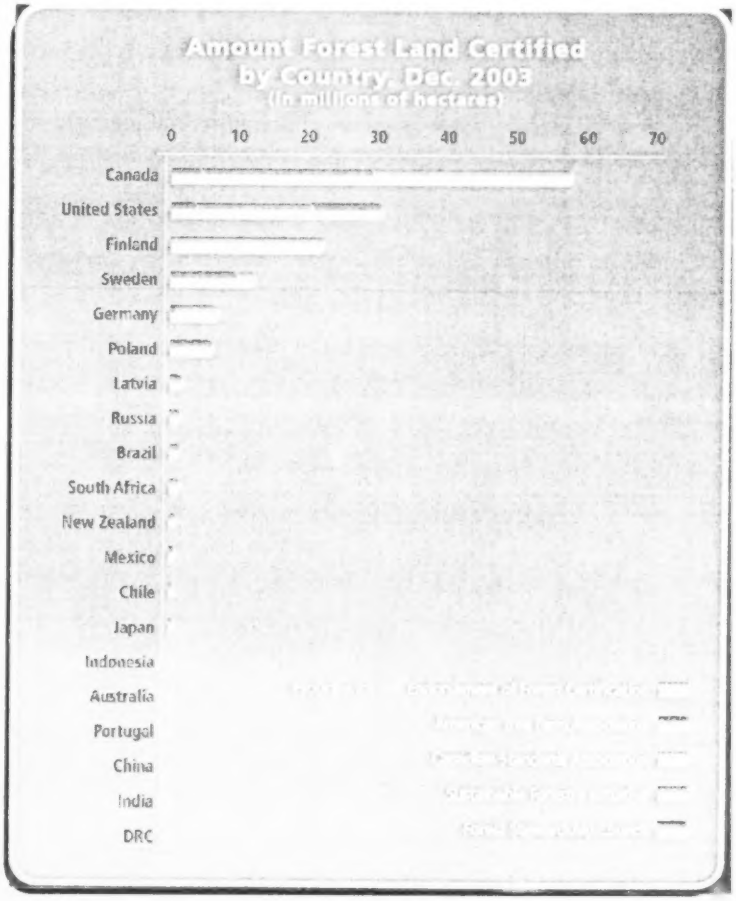

SUMMARY

Customers around the world want assurance that the forest products they are buying come from well-managed forests, which is the best choice for the global environment.

Global Environmental Forest Policies: Canada as a Constant Case Comparison of Select Forest Practice Regulations found that B.C. consistently has some of the most stringent regulations when compared with other leading suppliers of forest products. For example, B.C. has some of the most stringent rules for riparian zone management in North America and it requires that forest roads on public land are well built and decommissioned once the logging is completed. B.C. backs its forest laws with open and thorough compliance monitoring, and is a North American leader in third-party forest certification.

From a global perspective, the study concludes that there is encouraging evidence that governments around the world are making increased efforts to set policy for practice requirements in forest management. Dr. Cashore suggests B.C., with its stringent approaches to regulation, high level of certification and experience with results-based systems, is well positioned to promote the next and most important steps facing global forest management. This includes assessing how different policy approaches and innovations best address the very real environmental challenges facing the world's forests.

B.C.'s forests are the cornerstone of the province's economy and its way of life, and they are treasured around the world. B.C. enthusiastically embraces the fact its forests have global significance, and it manages them with this in mind. As a result, B.C. demonstrates strong global leadership and buyers can be confident that they are making the right choice for the environment by choosing forest products from B.C.

Global Environmental Forest Policies: Canada as a Constant Case Comparison of Select Forest Practice Regulations **is available online at . Comments on the report can be directed to Dr. Cashore by e-mail at**

BC Market Outreach Network

Forest Products Association of Canada | Association des produits forestiers du Canada

FSA - 037

For more information:
The BC Market Outreach Network delivers facts about B.C.'s sustainable forest management on behalf of B.C.'s government, industry and communities.

Visit our website at

to learn more about B.C. forests and how the province has become a world leader in forest management.

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